obtained by reconstructing this furnace upon the downdraft principle, as shown, in Fig. 88.

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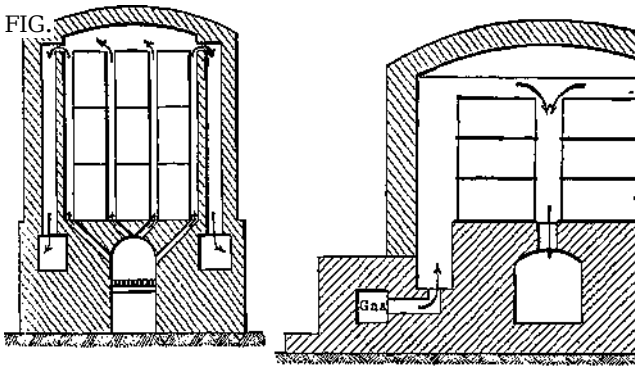
IX. FURNACES FOR ANNEALING MALLEABLE IRON CASTINGS

Fig. 89 shows the old style of annealing furnace for malleable-iron castings, according to Professor Ledebur. Fig. 90 is from the patent of P. Schnie in 1898, for the same purpose, but upon the downdraft principle. It is evident that it was practical experience

FIG.



89. FIG. 90.

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and not theory which led the inventor to apply the downdraft principle to these furnaces.

apparent perfection of their design, have never worked in a satisfactory manner. Their main disadvantages are the following:

Too rapid cooling of the burned ware;

The resultant cracking and spawling of the ware, which in turn results in a considerable loss of product;

An excess of air during combustion, resulting in a very sharp flame;

The high temperature of the waste gases;

The large amount of fuel required for burning the ware.

X. CONTINUOUS OR MULTIPLE CHAMBER KILNS RING FURNACES

Ring furnaces or kilns, notwithstanding the